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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/710,401	11/09/2000	Dongping Fang	40010-10028	5364

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EXAMINER	
PALADINI, ALBERT WILLIAM	
ART UNIT	**PAPER NUMBER**
2125	5

DATE MAILED: 03/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/710,401	FANG ET AL	
	Examiner	Art Unit	
	Albert W Paladini	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 November 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2,3*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crosswhite (6611726) in view of Altschuler (6216154).

In figure 1 Crosswhite discloses a method for determining a univariate ARIMA model of a time series utilizing a computer. Crosswhite states on lines 39-62 in column 9 "In this regard, the forecasting method may include a scrubbing or cleansing data step (12). Scrubbing data (12) is not a requisite step. This step, if necessary, should be able to be recreated for future forecasting steps to provide a consistency of forecasting results from one forecasting period to another. The first step of scrubbing data (12) is a determination if any data scrubbing is necessary. If there is missing data, then the missing data values must be filled in as part of the scrubbing data step (12). Methods to fill in missing data may comprise filling in a value of zero if the reason for the missing data were merely a business situation where there were no products sold during that period. A second method to fill in missing data may comprise using a forecasting approach such as outlined below for step (20) (e.g., for "n"=1) to forecast all of the data prior to the period that data were missing and then projecting a point estimate forecast to the next period to use as the replacement value for the missing data value. A third method to fill in

missing data may comprise averaging the data values on either side of the missing data and using the average as the replacement for the missing data value. A fourth alternate method to fill in missing data may include fitting a curve through all of the existing data and then interpolating inside of the curve to determine the replacement for the missing data value".

Crosswhite goes on to say on lines 38-63 in column 11 "In contrast, the present invention produces forecasting parameters that minimizes the error statistic (MAD, MAE, MAPE, RMSE, etc.) or maximizes likelihood estimates such that the estimated forecast (fit) for the preferred (future) period is the closest to the actual (historical) data for the preferred (future) period. This produces forecasting parameters in which forecasting the preferred future period is optimal and forecasts for others periods are likely to be sub-optimal. Since positive and negative errors would cancel themselves, the error calculation preferably utilizes the absolute value of these errors or the squared value of these errors. These absolute (or squared) error values are used to determine a single numerical error metric. The error metric may be MAD, MAE, MAPE or RMSE. It is also common that no one forecasting method would be the "best" (having the smallest numerical value for the error metric) in all error metric categories at the same time. It is more common that an individual industry would select one error metric and then all of the forecasting methods can be ranked on the numerical value of this one error metric. With the selected error metric, all forecasting methods can be ranked and their relative accuracy can be used as a gauge to determine which forecasting method works the best for the historical data. This allows better selection of the preferred forecasting methodology to be used (although any methodology may be utilized as part of the invention)."

Crosswhite does not explicitly describe a square root or logarithmic transformation as recited in claim 1 residuals recited in claims 1, and the use of techniques identified by acronyms such as NBIC,, AR, MA, ACF/PACF, recited in independent claims 6, 8, 16, 20, 24, 32, and 34.

However, the analysis of residuals and the modification of the model based on this analysis, optimum exponential smoothing, are well known in the art, and it would have been obvious to one of ordinary skill in the art to utilize these techniques as general tools without the need to invoke specific designated algorithms.

Altschuler discloses a forecasting technique evaluation groups of similar times dependent hypotheses and states on lines 24-35 in column 8 "Although correlation based on a linear regression was described, other types of curve regressions and correlations may be applied. Assuming that known linear regression techniques are used, linear regression coefficients ("a"--the slope of the line, and "b"--the y intercept of the line) are determined. More specifically, assuming that there is a linear relationship between x and y, namely y=ax+b, the square root of (i) the sum of vertical deviations (d.sub.i =ax.sub.i +b-y.sub.i) from the line, squared, and/or (ii) of the sum of horizontal deviations (d.sub.i '=a'y.sub.I +b'-x.sub.i) from the

line, squared, are minimized. The slope (a) of the line, squared, which minimizes the sum of squared vertical deviations may be expressed as:"

Thus it would have been obvious to one of ordinary skill in the art to fit the regression equation with the function appropriately chosen to conform to the functional form of the data relationships.

Relevant Prior Art

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jannarone (5835902) discloses a system for learning and responding to information using prior learned information using tools such as Auto-Regressive Integrated Moving Average models where missing data is inputted using historical trend data and by pinpointing unusual features by determining how input features deviate from their regressed values.

Aras (5884037) discloses a seasonal ARIMA model is a general class of models used to forecast a time series entirely from its own history. ARIMA models are used for predicting future behavior in many different and diverse fields such as forecasting hourly water usage, predicting U.S. money demand, anticipating atomic clock errors, etc. The model uses autoregressive terms and moving average terms to factor in the seasonality of the data trend and differences from time period to time period when making a prediction. The model has three components, two of which are used to adjust the prediction from the first, which is a simple mean. The second component is a linear combination of autoregressive terms. The last component is a linear combination of moving average terms. A moving average term is defined as the difference between a data point and its prediction.

3. Any inquiry concerning this communication or earlier communication from the examiner should be direct to Albert W. Paladini whose telephone number is (703) 308-2005. The examiner can normally be reached from 7:30 to 3:30 PM on Monday, Tuesday, Thursday, and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Leo P. Picard, can be reached on (703) 308-0538. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

February 24, 2004

Albert W. Paladini
Primary Examiner
Art Unit 2125